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A Comparative Study on Value of Money Among University Students in China and Hong Kong: A Facet Approach[*]

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The purposes of the paper were to establish a structure of value of money by a facet approach; to compare the value of money among undergraduates in Hong Kong and China; and to test if there were any gender differences in value of money in the two places. Data were collected from 74 (male = 25, female = 49) undergraduates from two universities in Hong Kong, and 64 (male = 25, female = 39) undergraduates from one university in China. A mapping sentence was constructed to make up a 19-item questionnaire for measuring facets of value of money. The results obtained from Smallest Space Analysis-I (SSA-I) revealed two facets of money: modality and symbolic meaning. A series of t*-tests revealed that there were statistically significant differences of value of money between Hong Kong and Chinese students: Hong Kong students scored higher in the symbolic meaning of "money desire" and "indicator for success/failure" than Chinese students. Further, there were more male students perceived money as "power" and "indicator for success/failure" than female students in both places.*

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Introduction

As argued by Furnham and Argyle (1998), "one of the most neglected topics in the whole discipline of psychology, which prides itself in the definition of the science of human behavior, is the psychology of money" (p. 2). Perhaps as it is explained by Lindgren (1991), psychologists have not studied money-related behaviors because they assume that anything involving money should lie within the discipline of economics. However, in recent years, some psychologists and educationalists have realized the importance to understand the monetary beliefs and behaviors of ordinary people. Some psychologists are interested in understanding how and why different groups of individuals with different beliefs and different backgrounds use money differently, as well as what effect money has on human relations (Buchan, 1995; Furnham, 1984; Rowland, 1996). Some social psychologists are concerned about the acquisition of money concepts and attitudes; and the symbolic meanings of money, relating money concepts to various symbols of society (Lynn, 1991). Some educationalists are interested in the socialization processes of money in young people, for instance, the way in which children handle money (Bodnar, 1995; Hoffman, 1996).

The Structure of Money Attitudes

Wernimont and Fitzpatrick (1972) used a semantic differential approach to investigate the meaning that different people attached to money. By factor analysis, they revealed a number of interpretable factors, such as "shameful failure," "social acceptability," and "moral evil." They concluded that money has a good deal of symbolic value, which means different things to different people depending on their developmental stage. Goldberg and Lewis (1978) suggested that the main symbolic factors associated with money were "security," "power," "love," and "freedom."

Since then, some studies have been conducted to develop a well-established attitude instrument measuring value of money. Yamauchi and Templer (1982) developed a fully psychometrized money attitude scale using factor analysis of 62 items. They revealed five factors: power-prestige, retention-time, distrust, quality and anxiety. In an empirical study in Britain, Furham (1984) developed a multifaceted instrument to measure money beliefs and behavior (Money Attitude Scale). By a factor analysis of the money scale, he revealed six factors that bore similarities to the factors found in Yamauchi and Templer (1982). He also demonstrated that some

factors were related to the demographic and belief variables. For instance, men in Britain tended to obtain higher means on valuation of money than women did.

In a study of attitude towards money in Taiwan, Yue (1989) used a semantic differential approach to investigate the meaning that people attached to money. By factor analysis, they revealed a number of factors, such as "money signifies power," "money signifies evil or dignity," "money can exchange power," "money is an index to evaluate success or failure."

Research on money attitudes in the 1990s has reiterated the conclusion that money takes many forms and has multiple meanings (Snelders, Hussein, Lea, & Webley, 1992). Obviously the ways about how to acquire and use money are ethical issues, which are related to an individual's value system. Tang (1992; 1993; 1995) and his coworkers (Tang and Gilbert, 1995; Tang, Furnham, & Davis, 1997) constructed and validated the 30-item multidimensional Money Ethic Scale, and found six factors: Good (e.g. Money is important; Money can buy you luxuries), Evil (e.g. Money is the root of all evil; Money is shameful); Achievement (e.g. Money represents one's achievement; Money can buy everything); Respect (e.g. Money makes people respect you in the community; Money can bring you many friends); Budget (e.g. I use my money very carefully; I budget my money very well); and Freedom (e.g. Money gives you autonomy and freedom; Money means power).

Tang (1993) translated the Money Ethnic Scale and administered it to Taiwanese students. He found that the students' attitudes towards money are consistent with their inner values. For instance, the students who had lower expectations of money tended to report having a happier and less stressful life than those that did not.

Research on value of money in the past relied heavily on the use of factor analysis. However, principal component analysis with a VARIMAX rotation is inadequate to reveal non-linear structures. We believe that the concept of value of money is a multi-faceted one (Levy, 1995). The facet approach has the advantages of providing clearer specification of questions, and it is good at dealing with non-linear dimensions. This approach can also tie more directly into existing values studies. Therefore, we intend to adopt a facet approach to establish a structure of value of money based on the modification of the definition of value suggested by Levy and Guttman (1976), which will be discussed in a later section. A detailed discussion on the facet theory can be found in Donald's (1995)

article. A brief description of facet theory is provided in the following paragraphs:

Facet Theory

Facet theory is a metatheoretical approach to scientific research that was initially developed by Louis Guttman in the 1950s and onwards. The aim of the facet approach is for theory construction and the discovery of laws in the behavioral sciences. At the heart of this is the precise definition of the research domain. There are three main components of domain definitions: (a) facets, (b) elements, and (c) mapping sentences.

a. Facets. The definition of a domain of concern, for example value of money, is achieved by specifying the major conceptual components of the domain in the form of facets. The facets precisely prescribe the boundaries of the research. As Shye (1978) defined, a facet is "a set playing the role of a component set of a Cartesian set" (p. 412). In short, a facet is a distinct conceptual category describing a component of a particular object or area of research. For example, age and sex could be facets.

There are three basic types of facet: background, domain (or content) and range facets. Background facets describe what may be considered to be the context of the study or certain population parameters. For instance, age and sex would usually be considered as background facets. The domain facets describe what may be considered as the "body" of the area of interest, for example symbolic meaning of money. The range facet describes the possible responses to the stimuli provided by the domain facets. For instance, in a questionnaire it is often represented by the response scale.

b. Elements. Each facet consists of a number of elements. The elements of a facet can be defined as the different values or the points that logically and completely describe all the variations within the facet. In other words, an element is a discrete component of a facet. For example, male and female are the elements in a facet of gender. Elements may also be numerical, such as intelligence scores.

There are a number of requirements for which facets and their elements should fulfill:

1. Each facet should consist of a mutually exclusive set of values or categories (elements). The elements within a facet should also be mutually exclusive.

2. Each facet should consist of a collectively exhaustive set of elements. The elements should fully cover all possible categories of which the underlying concept of the facets consists. Yet, the research may decide to narrow down some of the elements.
3. The facets should collectively exhaust the domain of interest. However, in the social sciences it is unlikely that the facets developed by a researcher will fully exhaust all aspects of the domain of interest (Donald, 1995, pp. 7–8).

c. Mapping Sentences. The background, domain, and range facets are linked together in the form of a mapping sentence. As described by Shye (1978), a mapping sentence is "a verbal statement of the domain and of the range of a mapping including connectives between facets as in ordinary language" (p. 413). In other words, a mapping sentence is a concise way of specifying the components of a research area and the relationships between them in normal language. There are many interrelated hypotheses embedded in a mapping sentence. As noted by Shye (1978), many hypotheses can be derived from a mapping sentence by relating the facets, the orderings of elements within a given facet, and the relative degree of association between items that are formed in certain ways from facet elements. There are many advantages and uses of mapping sentences. Levy (1976) outlines three major uses of a mapping sentence:

1. the provision of a precise definition of the universe of observation;
2. an aid to the perception of systematic relationships;
3. the provision of a way of modifying aspects of facets or their interrelationships.

A unique combination of facet elements is known as a "*structuple*." In developing a set of items to measure a domain each possible structuple (combination) is generated and worded as a meaningful item. Through this process it can be ensured that every aspect of the domain defined by the mapping sentence is covered. A number of possible structuples can be generated by the mapping sentence. In terms of set theory, the structuples and the content universe represent a Cartesian set.

In facet theory, the non-metric multidimensional scaling (MDS) procedure of Smallest Space Analysis (SSA-I) is most often used to examine structures by analyzing the interrelationships between structuples. As summarized by Dancer (1990), MSD procedures use measures of

association, including linear and monotonic coefficients of association, between all pairs of variables. The degree of association between two variables is a function of their similarity. The similarity is in terms of elements which the variables comprise; their structuple. The SSA represents the inter-item associations as parts in space such that the higher the association the closer the items are represented on the plot. The space, plots, are then partitioned into regions. Each region contains items that have a facet element in common. The notion of partitioning the space into regions is based on the principle of continuity, which is that the more similar items are conceptually, the greater will be their empirical relationship. If facets and element — the basic constructs of the domain — are valid they will form clear regions of the space. The shapes of the regions are also substantively meaningful. Dancer (1990) notes that "though regions in an MDS space can take any shape, configurations that are circular, wedge-shaped, or parallel strips are among the types of regionality that are more commonly observed" (p. 371). Wedge shape regions show unordered qualitative relationships. Parallel shapes show ordered quantitative differences.

In sum, facet theory provides a structural approach to the design and testing of a researcher's interpretations of a phenomenon.

Cross-Cultural Studies

Lynn (1991) used a shortened version of the Money Attitude Scale (Furnham, 1984) to investigate the valuation of money among university students in 20 countries. She found statistically significant negative association between the valuation of money and per-capita income among most nations; and she also found high positive correlation between the valuation of money and competitiveness across nations (Lynn, 1991). Since its open door policy in 1978, China has undergone rapid economic advancement. It is speculated that youth in China, in particular university students, have experienced significant changes in attitudes and value of money. In Hong Kong, another large Chinese but capitalistic society, it is generally agreed that current university students are more materialistic and have a higher valuation of money than those of the past. We can tell by the increasing number of students engaging in part-time jobs nowadays. It is believed that there are similarities and differences in value of money in the two places.

Gender Differences in Money Attitudes

In Lynn's (1991) study, it was found that men scored significantly higher than women did on the valuation of money in 14 countries. The gender differences show a general trend for males to attach more value to money than females. Lynn (1991) offered an explanation that it was most probably due to the fact that males tend to be more competitive than females. The results obtained from Lynn's study showed that women obtained higher means than men in Hong Kong and Transkei, but the difference in Hong Kong was not statistically significant. Lynn (1991) suspected that, in these two countries, fewer women attend universities. Therefore those women who do attend universities may tend to be more competitive and to value money.

The Present Study

The present paper describes research investigating the value of money among undergraduates in China and Hong Kong. We adopted a facet approach to establish a structure of value of money. This is obviously a methodological contribution to theories of psychology of money. We then examined the modified structure of the value of money, which was established in Western societies (e.g. Furnham, 1984; Yamauchi & Templer, 1982) and Taiwan (Tang, 1992; 1993; Yue, 1989), in two other Chinese societies — Hong Kong and China. Finally, we tested for gender differences, which were found in previous studies (Furnham, 1984; Lynn, 1991). The results of the present study will contribute to generalizability of theories of psychology of money, which will fill the gap of knowledge in the neglected topic in the psychology discipline. The purposes of the present study are therefore threefold: first is to establish a structure of value of money; second is to compare the value of money between Chinese and Hong Kong students; third is to compare the value of money between male and female students in Hong Kong and China.

Development of the Structure of Value of Money by a Facet Approach

According to Guttman (1982) and Levy (1990), value is conceived as a subset of attitudes with special emphasis on the concept of importance. Levy (1995) restated the faceted definition of "value" as a special case of "attitude":

An item belongs to the universe of attitude items if and only if its

domain asks about behavior in a/an (cognitive / affective / instrumental) modality

towards an object, and its range is ordered from (very positive to very negative)

towards that object. (p. 164)

In this faceted definition of value, the modality facet is a behavioral facet plays a modulating role. The three possible modalities of attitudinal behavior are cognitive, affective, and instrumental. In the present study, two facets of money were proposed: value modality, and symbolic meaning. The symbolic meaning facet is a content domain facet that specifies the design of observations of a given study. The rationale for selecting these facets is briefly presented as follows.

Facet A: Value Modality

Value of money has instrumental value, and practical consequences, e.g. allowing people to buy goods and live particular lifestyles. Value of money is also cognitive in nature, providing a sense of interest and achievement. The last element of this facet is affective in nature, such as enhancing happiness, and social relationships.

Facet B: Symbolic Meaning

The second facet of value of money concerns the different perspectives of symbolic meanings of money. The first element of this facet implies that money signifies power, e.g. Money can buy happiness. The second element implies that money can be an indicator to evaluate one's success or failure. The third element measures one's desire of getting money.

These two facets are presented in the mapping sentence depicted as follows:

Mapping Sentence for Value of Money:

The extent to which one assesses the importance of money to oneself of having

Facet A: Modality and
a1: affective
a2: cognitive
a3: instrumental

Facet B: Symbolic Meaning,
b1: power
b2: indicator for success or failure
b3: money desire

Range
very high
is of [to] importance to him/her.
very low

On the basis of the above mapping sentence, 9 structuples (3 x 3) were generated. A 19-item questionnaire was devised by constructing about three items to each structuple. The scoring procedure of the items ranged from "1" (strongly disagree) to "7" (strongly agree). A copy of the questionnaire is presented in the Appendix.

Based on the research literature, the hypotheses of the study are as follows:

1. The basic structure of the value of money in Chinese students is similar to that of the Hong Kong students.
2. There are differences in value of money between Hong Kong and Chinese students.
3. Male students put higher value on money than female students in both places.

Methodology

Instrument

A questionnaire was constructed consisting of some items measuring demographic variables, and 19 items measuring different facets of value of money.

Sample

The target population of the study are undergraduate students in Hong Kong and China. 100 students from Lingnan University and The Hong Kong University of Science and Technology in Hong Kong, and 100 students from Jinan University in Guangdong Province in China were invited to participate in the study by accidental sampling and purposive sampling method.

Procedures

Self-administered questionnaire survey method was employed to collect quantitative data. The data collection in Hong Kong was conducted by purposive sampling method in Spring 1996. The data collection in China was conducted by purposive sampling method and by accidental sampling method in the university campus in Spring 1996.

Statistical Procedures

The data was analyzed by the non-metric MSD procedure of Smallest Space Analysis-I (SSA-I), as this method is most suitable for analyzing the relations between items and for testing hypotheses concerning the structure of the domain (Zarhi & Elizur, 1995). According to Donald and Canter (1990), the SSA-I program begins by calculating the association coefficients between each pair of questionnaire items. It then represents the items as points in a n-dimensional space such that the rank of the distances between the points is the inverse of the rank of the inter-item association coefficients. Thus, the closer together two points are in the space, the higher their positive association. The coefficient of alienation is usually considered acceptable when it is .2 or below. Guttman's μ was used as the association coefficient in the study.

Results and Discussion

There were 74 and 64 completed questionnaires returned from Hong Kong and China sample respectively, which constitutes response rates of 74% and 64%. The reliability of the 19 items was measured by Cronbach alpha, and was reasonably high (alpha = .81, .86 and .83 for the Hong Kong sample, the China sample, and the full sample respectively). The coefficients of alienation in SSAs were all below .2, ranging from .151 to .166 (see Figures 1 to 4).

Structure of Value of Money

The structure of value of money was analyzed for the two samples: Chinese and Hong Kong students. The 3-dimensional SSA plots of modality and symbolic meaning of the Chinese students are presented in Figures 1 and 2 respectively. The 3-dimensional SSA plots of modality and

Figure 1 SSA (1 by 3), China — Modality

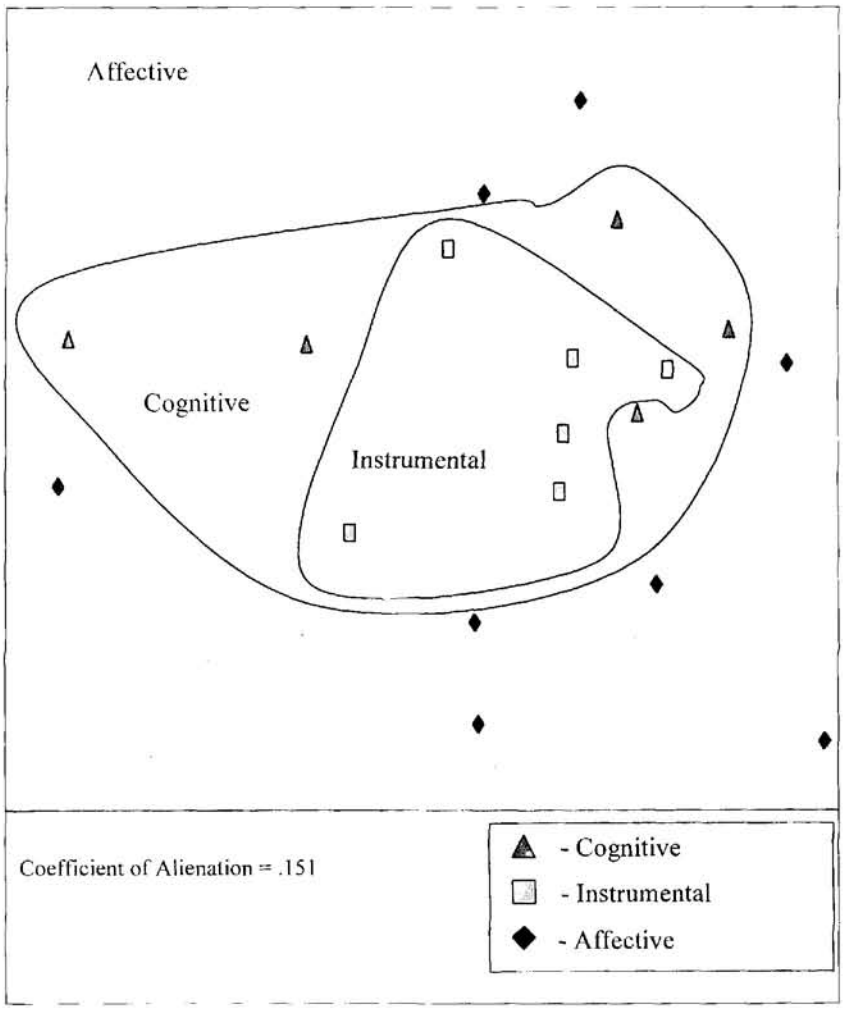


Figure 2 SSA (1 by 2), China — Symbolic Meaning

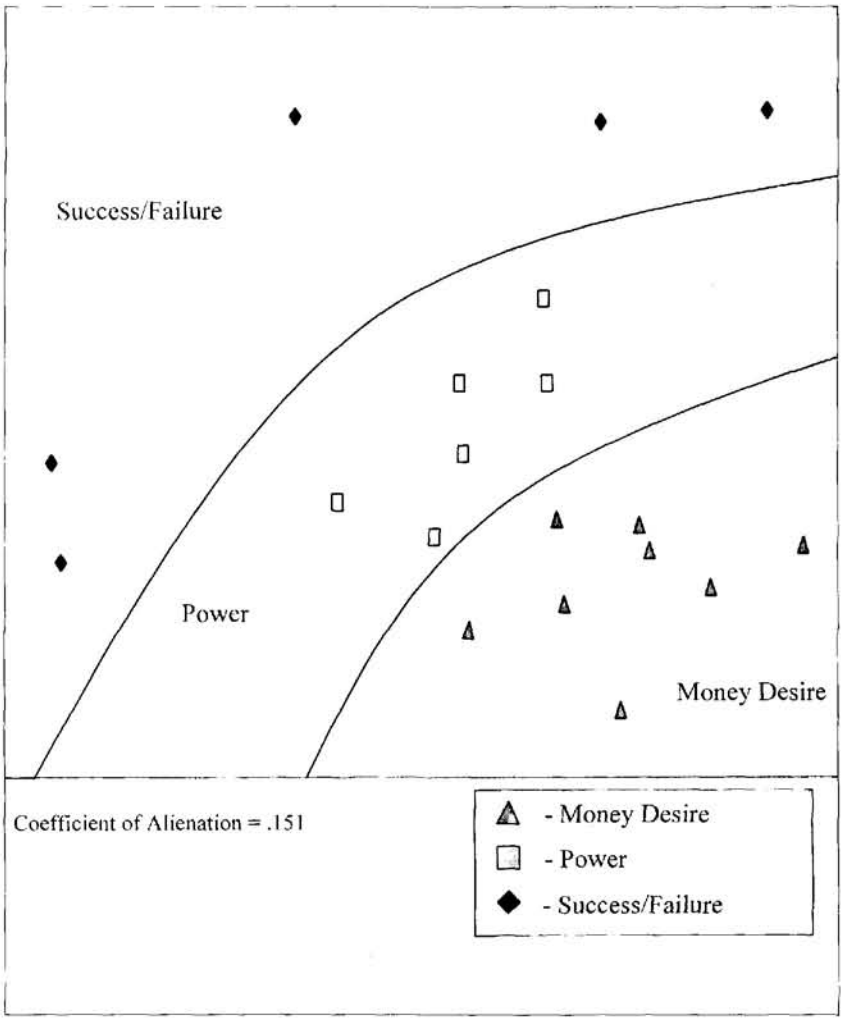


Figure 3 SSA (2 by 3), Hong Kong — Modality

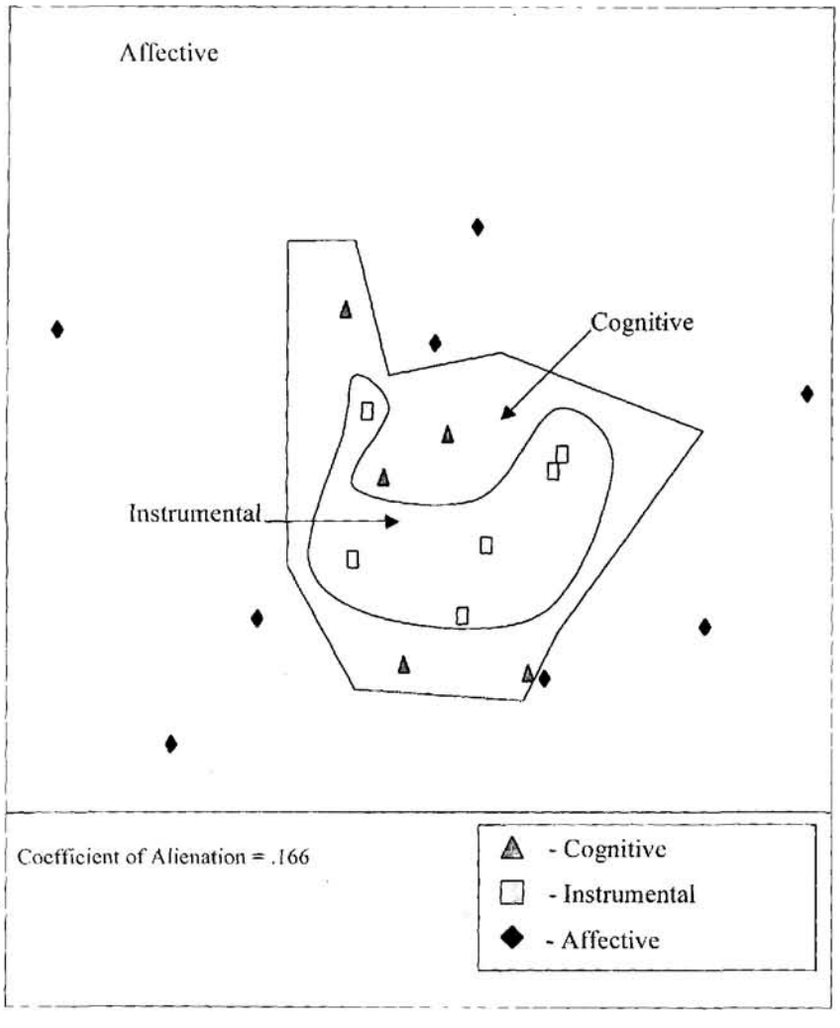
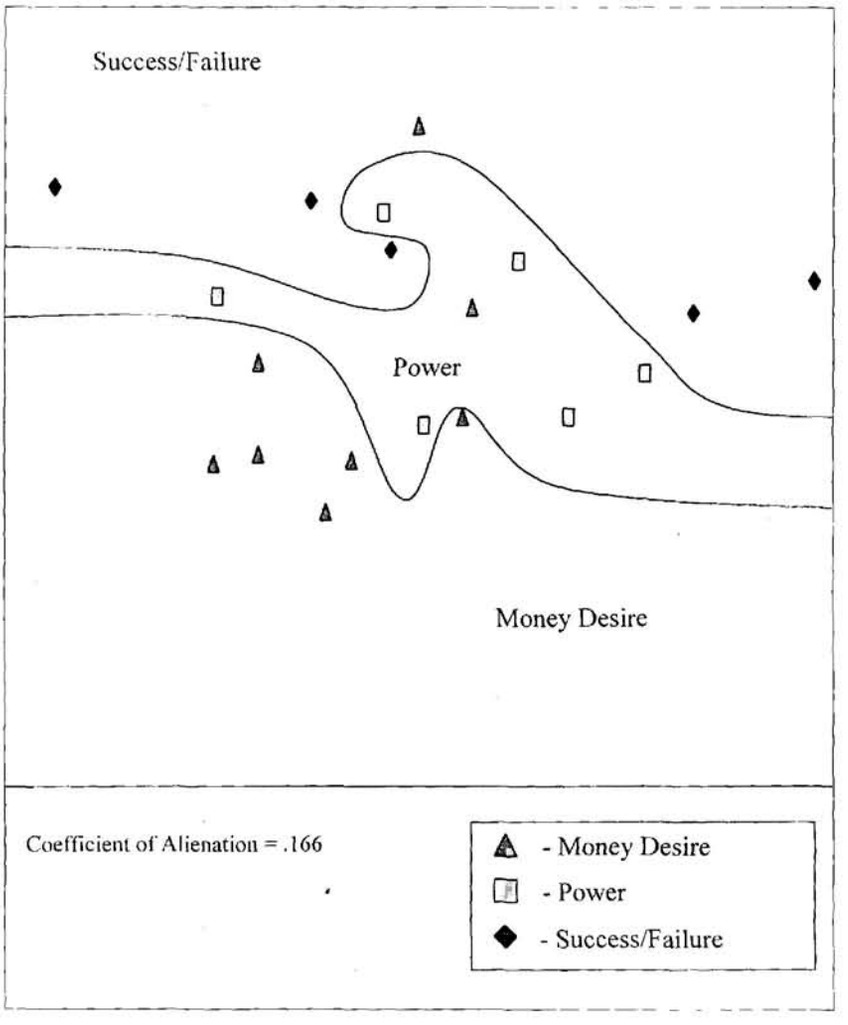


Figure 4 SSA (1 by 3), Hong Kong — Symbolic Meaning



symbolic meaning of Hong Kong students are presented in Figures 3 and 4 respectively. From Figures 1 and 3, similar patterns were obtained in such a way that the three elements of the modality facet occupy the region in a radex structure, with the "instrumental" element in the center, the "cognitive" element in the middle concentric circle, and the "affective" element at the periphery. From Figures 2 and 4, again similar patterns were obtained in the two groups that the structure of the value of money can be perceived as an order of three symbolic meanings, which occupy each a distinct region. The order is from "money desire," "power," to "indicator for success or failure."

The symbolic meaning map can be mapped on the modality facet. Each of the modalities: cognitive, instrumental, and affective, corresponds to each element of symbolic meaning. The "money desire" element corresponds to the "cognitive" region, the "power" element corresponds to the "instrumental" element, and the "indicator for success or failure" element correspond to the "affective" element. From these results, it can be concluded that the structure of value of money in Chinese students is similar to that of the Hong Kong students: it consists of modality and symbolic meaning facets. Therefore hypothesis 1 can be supported. However, the modality facet revealed in Chinese subjects is different from that found in the Western countries (e.g. Elizur, Tchaicovsky, & Yamauchi, 1995; Zarhi & Elizur, 1995). They found the elements of the modality facet occupy each a distinct region corresponding to a different direction. Perhaps the value of money is of an instrumental nature that it is found to be at the center of the modality facet. It is worthwhile to conduct similar study in Western society in the future.

Comparison of Value of Money Between Chinese and Hong Kong Students

The scales of each element of the symbolic meaning facet are computed by adding the scores of 5 to 6 items which are more closely located in the SSA plots. They are depicted as follows:

Power = no. 6 + no. 8 + no. 14 + no. 18 + no. 19
Money Desire = no. 1 + no. 2 + no. 3 + no. 4 + no. 9 + no. 17
Success/failure = no. 11 + no. 12 + no. 13 + no. 15 + no. 16.

A series of *t*-tests were conducted to test the significant difference of

the elements of symbolic meaning facet between the two samples, and the results are presented in Table 1.

Table 1 shows that Hong Kong students scored significantly higher in "money desire" and "indicator for success/failure" than Chinese students. Yet, there was no significant difference in "power" between the two groups. Therefore, hypothesis 2 is partially supported. These differences can be attributed to the fact that Hong Kong has long been a competitive capitalistic and commercial society, that Hong Kong students have developed the "money-minded" attitudes. Thus, they perceived the symbolic meaning of money as more important than Chinese students did. These results corroborated the findings obtained from Lynn's (1991) study. She also found a positive relationship between competitiveness and valuation of money among university students.

Table 1 Means, Standard Deviations (SD), and *t*-values of Elements of Symbolic Meaning in Chinese and Hong Kong Students

	China		Hong Kong		
	Mean	SD	Mean	SD	*t*-value
Money Desire	16.71	5.65	19.43	6.01	2.73*
Power	15.51	5.57	16.23	5.10	.80
Success/Failure	15.20	4.25	18.74	4.29	4.88**

* $p < .01$ ** $p < .001$

Gender Differences in Value of Money

A number of t-tests were also conducted to test if there are significant differences in the elements of symbolic meaning facet between male and female students in the two samples, and the results are presented in Table 2 and 3.

Table 2 Means, Standard Deviations (SD), and *t*-values of Elements of Symbolic Meaning Between Male and Female Students in China

	Male		Female		
	Mean	SD	Mean	SD	*t*-value
Money Desire	19.52	6.21	14.95	4.51	3.43**
Power	19.20	5.34	13.20	4.37	4.94**
Success/failure	15.68	5.04	14.90	3.71	.72

** $p < .001$

Table 3 Means, Standard Deviations (SD), and *t*-values of Elements of Symbolic Meaning Between Male and Female Students in Hong Kong

	Male		Female		
	Mean	SD	Mean	SD	*t*-value
Money Desire	20.04	6.37	19.10	5.94	.63
Power	18.81	5.75	14.83	4.13	3.43**
Success/failure	20.50	4.82	17.79	3.68	2.70*

* $p < .01$ ** $p < .001$

Table 2 shows that male Chinese students scored significantly higher in "money desire" and "power" than female students. Yet, there was no significant difference in "success/failure" between gender in this group. Table 3 shows that, in Hong Kong, male students scored significantly higher in "power" and "success/failure" than female students. Therefore, hypothesis 3 is partially supported. The gender differences revealed from this study corroborated previous studies (Furnham, 1984; Lynn, 1991). One possible explanation for these differences might be that male students, who might have considered themselves as "bread-winners" in the future, perceived the symbolic meaning of money as more important than female students. According to Lynn (1991), another possible explanation for these sex differences is that "men tend to be more competitive than women and that money is a symbol of success. It follows that men's stronger sense of competitiveness would be expressed in a number of ways, including greater valuation of money" (p. 507).

Conclusion

The limitations of the present study are twofold. Firstly, the samples were chosen by non-random sampling methods. Secondly, the sample size was rather small. Accepting these caveats, all of the purposes of the present study have been achieved. The reliability and validity of the structure of the value of money have been demonstrated. The established structure of the value of money by a facet approach has provided a methodological contribution to money attitude research. The comparisons of the value of money scores in Chinese and Hong Kong students revealed some differences between the two groups, which can possibly attributed to differences in economic situation and competitiveness of the two societies. Further, some gender differences in the value of money were also found in the two groups, in which male students put a higher value on money than female

students did. These results provide support to previous studies conducted in Western societies and in Taiwan, which contribute to generalizability of theories of psychology of money.

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Appendix

Questionnaire

Items	Structuples
1. Money is the most important thing in the world.	a2 b3
2. Working is only for earning money.	a2 b3
3. Getting money is all that matters.	a3 b3
4. "If you are not selfish, the world will blame you."	a1 b3
5. "In this society, people only laugh at the poor but not the prostitute."	a1 b3
6. "Money can make the ghost do things for you."	a3 b1
7. The more money you have, the more successful you are.	a3 b3
8. Money can buy happiness.	a3 b1
9. I always argue with friends because of money.	a1 b3
10. Money can buy love.	a1 b1
11. "Money is the source of all evil."	a2 b2
12. Rich people are more likely to be capable.	a2 b2
13. Money will bring me more trouble.	a1 b2
14. Money will give me more friends.	a3 b1
15. "Poor couples have hundreds of unhappiness."	a1 b2
16. Poor people are more likely to be not capable.	a2 b2
17. I always feel upset by having not enough money.	a1 b3
18. Most things can be evaluated in terms of money.	a3 b1
19. I will get married to someone whom I don't like for the sake of one million dollars.	a1 b1